

What is claimed is:

1. A folded solar telescope suitable for the safe observation of the sun, the telescope comprising:

a folded telescope assembly that comprises an objective lens, two or more light folding devices, a second lens, and a projection surface;

an equilateral triangular folded telescope frame in which the telescope assembly is mounted;

a curved support device wherein the curvature of the surface to support the telescope frame is an arc of the circle that inscribes the triangular telescope frame such that when the telescope frame is supported by the curved support device the center of mass of the telescope is substantially coincident with the origin of the circle defining the curvature of the semicircular support device;

a gnomon mounted on the exterior face of the telescope frame through which the objective lens is mounted such that the gnomon is substantially parallel to the axis defined by the center of the objective lens and the center of the first folding mirror or prism; and

a pointing target assembly comprising a small secondary aperture in the face of the telescope frame through which the objective lens is mounted proximal to the objective lens and a target on the interior of the telescope frame such that the axis defined by the secondary aperture and the target is parallel to the axis defined by the center of the objective lens and the center of the first folding mirror or prism.

2. A telescope according to claim 1 wherein the light folding devices are mirrors or prisms.

3. A telescope according to claim 1 wherein the telescope comprises a translucent screen such that an image projected onto the translucent screen is visible from the opposite face of the screen from the impacting light source and the image is observable from the exterior of the telescope frame.

4. A folded solar telescope supported by a telescope support device such that the center of gravity of the telescope is unaffected by changing the elevation of the telescope.

5. A telescope according to claim 4 wherein the telescope elevation can be varied from 0° to 90° .

6. A telescope according to claim 5 wherein the friction between the telescope frame and the support device is sufficient to stabilize the telescope at a specified elevation.

7. A telescope according to claim 4 wherein the shape of the telescope frame is a regular n-sided polygon.

8. A telescope according to claim 7 wherein $n=3$ such that the shape of the telescope frame is an equilateral triangle.

9. A telescope according to claim 7 wherein the telescope support device comprises a curved surface on which the telescope frame is supported, the curvature of the telescope support device surface is defined by an arc of a circle that inscribes

the n-sided polygonal telescope frame.

10. A telescope support device according to claim 9 wherein the arc defining the curvature of the telescope support device is a semicircle.

11. A telescope according to claim 4 wherein the telescope frame is a cylinder that inscribes the dimensions of the telescope.

12. A telescope according to claim 11 wherein the telescope support device is a cylinder with a smaller diameter than the diameter of the cylindrical telescope frame and the axis of the cylindrical telescope support device is perpendicular to the axis of the cylindrical telescope frame.

13. A telescope pointing system comprising one or more visual guides wherein the visual guides are integral to the telescope such that the axis or line defined by each guide apparatus is parallel to the line defined by the center of the primary aperture and the center of the first mirror or prism for molding the light from the target.

14. A telescope pointing system according to claim 12 wherein the pointing system comprises a gnomon or other straight reference object that has a long dimension oriented parallel to the rays of light that pass through the objective lens and strike the first mirror or prism;

15. A telescope pointing system according to claim 13 wherein the pointing

system comprises:

a secondary aperture for admitting a small cross-sectional beam of light; and
a pointing target located within the telescope such that the line defined by the pointing target and the secondary aperture is parallel to the rays of light that pass through the objective lens and strike the first mirror or prism.

16. A telescope pointing system according to claim 13 wherein the pointing system comprises:

a gnomon which has a long dimension oriented parallel to the rays of light that pass through the objective lens and strike the first mirror or prism;

a secondary aperture for admitting a small cross-sectional beam of light; and
a pointing target located within the telescope such that the line defined by the pointing target and the secondary aperture is parallel to the rays of light that pass through the objective lens and strike the first mirror or prism.

17. A method of pointing a folded solar telescope at the sun or other target such that an image of the sun is projected onto a viewing surface, the method comprising:

i) observing one or more visual aids present on the telescope;
ii) adjusting the azimuth and elevation of the telescope in reference to the information acquired from observing the visual aids; and
iii) repeating steps i) and ii) until an image of the sun is visible on the telescope viewing surface.

18. A method of pointing a telescope according to claim 17, comprising:

i) pointing the telescope so the objective lens is pointed generally towards the sun;

ii) observing the shadow cast by the gnomon;

iii) adjusting the azimuth and elevation of the telescope to minimize or eliminate the shadow cast by the gnomon or other straight reference object; and

iv) repeating steps ii) and iii) until an image of the sun is visible on the telescope viewing surface.

19. A method of pointing a telescope according to claim 17, comprising:

i) pointing the telescope so the objective lens is pointed generally towards the sun;

ii) observing the position where a beam of light passing through a secondary aperture strikes the interior of the telescope frame;

iii) adjusting the azimuth and elevation of the telescope such that the beam of light passing through the secondary aperture strikes the pointing target; and

iv) repeating steps ii) and iii) until an image of the sun is visible on the telescope viewing surface.

20. A method of pointing a telescope according to claim 17, comprising:

i) pointing the telescope so the objective lens is pointed towards the sun;

ii) observing the shadow cast by the gnomon;

iii) adjusting the azimuth and elevation of the telescope to minimize or eliminate the shadow cast by the gnomon;

iv) observing where a beam of light passing through a secondary aperture strikes the interior of the telescope frame;

v) adjusting the azimuth and elevation of the telescope such that the beam of light passing through the secondary aperture strikes the pointing target; and

vi) repeating steps ii) through v) until an image of the sun is visible on the telescope viewing surface.